



Summary report of the 2025 WHO Core Assessment Group Meeting on Pesticide Residues

**Acceptable daily intakes, acute reference doses and general consideration items recorded
by the 2025 Core Assessment Group Meeting on Pesticide Residues**

Bangkok, 16–25 September 2025

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Abbreviations

ADI	Acceptable daily intakes
ARfD	Acute reference doses
AUC	Area under the concentration-time curve
CIFOCO	Comprehensive Individual Food Consumption Database
CCPR	Codex Committee on Pesticide Residues
FAO	Food and Agriculture Organization of the United Nations
GECDE	Global estimate of chronic dietary exposure
IEDI	International estimated daily intake
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
NAM	New Approach Methodologies
NTU	Nanyang Technological University
WHO	World Health Organization

1. Summary and recommendations

The following extracts of the results of the 2025 WHO Core Assessment Group Meeting on Pesticide Residues (hereafter “the WHO Meeting”) are provided to make them accessible to interested parties at an early date (see **Table 1**).

The WHO Meeting evaluated 15 pesticides, including seven new compounds and three compounds that were re-evaluated within the periodic review programme of the Codex Committee on Pesticide Residues (CCPR), for toxicity.

Several metabolites were evaluated for potential inclusion in the residue definition for risk assessment. Information on these metabolites will be made available in the 2025 WHO Meeting report.

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Table 1. Summary of recommendations by the WHO Core Assessment Group on Pesticide Residues

Compound	ADI	ARfD
Acequinocyl* (2025)	0–0.02 mg/kg bw	0.2 mg/kg bw
Biphenyl-2-ol (2-phenylphenol) (56)**	Evaluation postponed	
Bifenthrin (178) (2009)	0–0.01 mg/kg bw	0.01 mg/kg bw
Cyprodinil (207) (2003)	0–0.03 mg/kg bw	Unnecessary
Dimethoate (27)	Evaluation postponed	
Dimpropyridaz* (2025)	0–0.2 mg/kg bw	1 mg/kg bw
Fludioxonil (211) (2004)	0–0.4 mg/kg bw	Unnecessary
Guazatine (114)** (2025)	0–0.008 mg/kg bw	Unnecessary
Ipflufenquin* (2025)	0–0.07 mg/kg bw	1.0 mg/kg bw
Malathion (49) (2016)	0–0.3 mg/kg bw	2 mg/kg bw
Metraylpicozamid* (2025)	0–0.2 mg/kg bw	Unnecessary
Permethrin (120)**	0–0.05 mg/kg bw (2022)	0.05 mg/kg bw (2025)
Proquinazid* (2025)	0–0.01 mg/kg bw	0.3 mg/kg bw
Spidoxamat* (2025)	0–0.7 mg/kg bw	Unnecessary
Tiafenacil* (2025)	0–0.004 mg/kg bw	Unnecessary

ADI: Acceptable daily intake; ARfD: acute reference dose; bw: body weight.

Note: The years in brackets refer to the JMPR meetings at which the respective health-based guidance values were originally established. All substances were reviewed as part of the 2025 JMPR meeting. All previous JMPR reports are available at: [https://www.who.int/groups/joint-fao-who-meeting-on-pesticide-residues-\(jmpr\)/publications/reports](https://www.who.int/groups/joint-fao-who-meeting-on-pesticide-residues-(jmpr)/publications/reports)

* New compound

** Compound evaluated under the periodic review programme of the Codex Committee on Pesticide Residues

2. General consideration items

2.1 Developments in dietary exposure methodology for pesticide residues in foods

The 2025 WHO Meeting considered a range of documents making reference to the dietary exposure assessment methodologies used by the JMPR. These documents included the draft report of the fifty-sixth session of the Codex Committee on Pesticide Residues (CCPR56) (Codex, 2025a) and CCPR56 Conference Room Documents such as those submitted by member countries and observers (Codex, 2025b). WHO's Core Assessment Group Meeting received further details related to the dissenting opinion noted in Annex 10 to the 2024 JMPR report (FAO & WHO, 2025a). Based on the discussions, the Meeting prepared a background document that includes general information about dietary exposure assessment methodologies, consideration of the international estimated daily intake (IEDI) and global estimate of chronic dietary exposure (GECDE) methodologies used by the JMPR, validation work that has been conducted to date, along with responses to issues and questions raised. This document will serve as a reference for future JMPR technical meetings or workshops to further discuss the dietary exposure methodologies for JMPR purposes, and will be used to inform feedback to a future CCPR meeting.

2.2 Dietary exposure updates for Codex Alimentarius Commission Procedural Manual

In recent discussions within CCPR and JMPR on methodologies for dietary exposure assessments for pesticide residues for use by the JMPR, and during the fifty-fifth and fifty-sixth sessions of the Codex Committee on Pesticide Residues (Codex 2024; 2025a; 2025b), it has been noted that the current version of the Codex Alimentarius Commission Procedural Manual, Thirtieth Edition (FAO & WHO, 2025), refers to only one specific methodology for chronic dietary exposure assessment for pesticide residues (the IEDI) and GEMS/Food cluster consumption data that are derived from national food balance sheet information (supply, utilization and account data), grouped into clusters of countries with similar food profiles.

Within the Procedural Manual, Section 4.8 Risk analysis principles applied by the Codex Committee on Pesticide Residues, paragraphs 200–207 relate to dietary intake. The paragraphs in this section note the use of the GEMS/Food cluster consumption data by JMPR for chronic dietary exposure assessments (paragraphs 200, 203 and 213) and refer to JMPR calculating the IEDI (paragraphs 202, 203, 205 and 251). Paragraph 213 in the Risk Management Role of CCPR section notes that “CCPR shall base its recommendations on the global environment monitoring system (GEMS)/Food diets used to identify consumption patterns. The GEMS/Food diets are used to assess the risk of chronic exposure”.

The Procedural Manual also notes that JMPR uses WHO and FAO guidance documents to inform its risk assessments (WHO 1997; FAO 2003). Outside of the Procedural Manual, there are also other

guidance documents and training manuals used by JMPR (FAO, 2012; FAO, 2016). These documents include references to now superseded datasets (e.g. the five GEMS/Food Regional diets, used prior to the cluster diets) and also currently reference the IEDI methodology as the method for assessing chronic risk of pesticides. None of these documents capture recent developments in dietary exposure assessments nor reference the Environmental Health Criteria (EHC) 240 Chapter 6 on dietary exposure assessments, updated in 2020 (WHO & FAO, 2020b), including more specific information about the GECDE methodology and more recent food consumption databases such as the Comprehensive Individual Food Consumption Databases (CIFOcOss).

The WHO Core Assessment Group recommends that, with the development and adoption of updated dietary exposure methodologies used by the JMPR, the Codex Procedural Manual should also be updated. The revisions should:

- be methodologically flexible, allowing for future updates in line with evolving scientific practices;
- mention specific methods such as GECDE, or specific databases such as CIFOcOss for food consumption data, only as illustrative examples;
- reference EHC 240, Chapter 6 Dietary exposure assessment for chemicals in food (WHO & FAO, 2020) as the foundational document outlining the principles and methodologies for the dietary exposure assessment of chemicals in food; and
- ensure that all related guidance documents and training manuals are updated to account for current JMPR methodologies in line with updates to the Procedural Manual.

Such amendments will ensure that dietary exposure assessments conducted by the JMPR are fit for purpose using the most up-to-date data and relevant methodologies.

2.3 Integration of data from New Approaches Methodologies into JMPR's pesticide safety assessments

2.3.1 Background and objective of the discussion

Advances in science are rapidly expanding the application of New Approach Methodologies (NAMs), including in vitro, in silico, and other non-animal testing methods. Information from NAMs has been utilized by JMPR in its pesticide safety assessments for many years (e.g. the evaluation of the genotoxicity of metabolites). However, the use of this kind of data remains under development in pesticide evaluation. This issue was the subject of a workshop jointly organised by WHO and Nanyang Technological University (NTU) Singapore in June 2025, the outcome of which was presented at the current Meeting. The WHO Core Assessment Group Meeting discussed the possibility and feasibility of expanding the use of NAMs in the safety evaluation of pesticides.

2.3.2 How does JMPR see the application of NAMs in its safety evaluations?

NAMs encompass a broad and evolving range of methods, making their definition challenging. The acceptance of NAMs by JMPR depends on the robustness, scientific validity, and fitness-for-purpose of

each method. The application of some NAMs is limited by the state of our current mechanistic understanding. Additionally, very few NAMs have OECD validation. To ensure pesticide evaluations use the best available science, JMPR will assess NAMs on a case-by-case basis, rather than await formal validation.

2.3.3. How can JMPR's safety assessment of pesticides be improved using NAMs?

Currently, some NAMs can be used for decision-making, while others can be used as supplemental information in a weight of evidence approach. The 2025 WHO Core Assessment Group members emphasize that NAMs have the potential to improve both the accuracy and efficiency of dietary risk assessments. NAMs can also contribute to the reduction, refinement and replacement of animals used for toxicological testing. The Meeting further encourages submission of NAMs-derived data for further consideration in its safety assessments.

2.3.4 How can the WHO Core Assessment Group contribute to the appropriate use of NAMs?

An update of Environmental Health Criteria (EHC) 240: Principles and Methods for the Risk Assessment of Chemicals in Food (WHO & FAO, 2020) is recognized as necessary, to include guidance on fit for purpose application of NAMs and how they are reported and evaluated. The guidance should cover general principles and should be sufficiently agile to incorporate future developments. Experts from both JMPR and the Joint FAO/WHO Expert Committee on Food Additives (JECFA) should be involved in the update of EHC 240. Building trust and confidence among Member States regarding the use of NAMs in pesticide safety evaluations is essential for broader acceptance. Therefore, transparent and clear communication to and from the CCPR is essential.

Encouraging sponsors to submit NAMs data, and providing guidance and feedback, will support the appropriate use of these methods. Future calls for data should continue to encourage the submission of NAMs data.

The WHO Core Assessment Group recommends the Secretariats of both JMPR and JECFA to set up a working group to update the EHC 240 and that JECFA review the application of NAMs in their assessments.

2.4 Non-linear toxicokinetics guidance electronic working group

The WHO Core Assessment Group Meeting recommends that the electronic working group continue its work with the aim of finalising the guidance for JMPR monographers and reviewers on non-linear toxicokinetics in 2026.

2.5 Plasma and/or blood area under the concentration–time curve (AUC) ratio use for identification of major rat metabolites

An important consideration in JMPR assessments of the toxicological profile of metabolites of pesticides is the extent to which they would have been covered by studies of the parent compound. If the metabolite

is a significant biotransformation product (higher than 10% of the administered/absorbed dose) it is considered to have been covered by these studies. This assessment is most often performed from the amount excreted in urine, although information from other routes of excretion, including bile, can be useful. Some have suggested that such information can be obtained from blood or plasma data. However, it is the view of JMPR that plasma (or blood) $AUC_{\text{metabolite}}$ to AUC_{parent} or $AUC_{\text{total radioactivity}}$ ratio should not be used as the sole determinant of whether or not a metabolite is a major biotransformation product. AUC is not a direct measure of systemic exposure on a mass balance basis.

2.6 Update on the Guidance Document for WHO Monographers and Reviewers

The WHO Core Assessment Group Meeting discussed the draft Guidance Document for WHO Monographers and Reviewers and provided further comments. The Meeting recommends that the draft be revised as soon as possible and made available for a final round of commenting.

3. Response to specific concerns raised by the Codex Committee on Pesticide Residues

The European Union (EU) submitted a concern form to the fifty-sixth session of the CCPR outlining concerns on acetamiprid, indicating acute risks for consumers in relation to potential developmental neurotoxicity. The EU further considered that a re-evaluation for toxicology and residues for acetamiprid should be prioritised by the Joint FAO/WHO Meeting on Pesticide Residues.

The Meeting noted that, following a request from CCPR, acetamiprid was on the agenda for a follow-up evaluation in 2017. However, as no toxicological information was provided, the Meeting concluded that it was unnecessary to conduct a toxicological evaluation at the time.

The present Meeting was unable to fully address the concern because of the short notice. The Meeting recommends to CCPR that acetamiprid to be prioritized for a periodic re-evaluation.

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